

What is claimed is:

1 1. A system for dynamically generating Web content using a parse
2 tree, comprising:

3 a template describing a dynamically generated Web page, the template
4 comprising a script written in a tag-delimited page description language and
5 including one or more markers which each indicate a relative location within the
6 Web page for dynamic content insertion;

7 a parse tree defining display regions, the parse tree comprising a plurality
8 of nodes structured into levels, each node corresponding to one of the markers in
9 the template, each successive level representing a further nesting of the markers
10 within the script;

11 a parse tree defining display regions, the parse tree comprising a plurality
12 of nodes structured into levels, each node corresponding to structural tags
13 specified within the script, each successive level representing a further nesting of
14 the structural tags within the script;

15 a substitution module substituting each marker with dynamic content,
16 comprising inserting the dynamic content into the display region for the
17 substituted marker and processing each node located in a level of the parse tree
18 previous to the node corresponding to the substituted marker; and

19 a display module serving the Web page script into an output buffer with
20 the dynamic content included therein.

1 2. A system according to Claim 1, further comprising:

2 the substitution module copying a display region into which dynamic
3 content was previously inserted into the output buffer.

1 3. A system according to Claim 1, further comprising:

2 the substitution module deleting a display region into which dynamic
3 content was not previously inserted from the output buffer.

1 4. A system according to Claim 1, further comprising:

2 a parser module parsing the script for display regions, comprising
3 identifying matched pairs of select tags within the statements in the script and
4 creating a new node within the parse tree for the markers located between the
5 matched select tag pairs.

1 5. A system according to Claim 1, further comprising:
2 the substitution module adding a display region to the output buffer when
3 such display region was not previously inserted into the output buffer and
4 iteratively adding a parent display region into the output buffer, each parent
5 display region corresponding to each such node located in a level of the parse tree
6 previous to the node corresponding to the added display region.

1 6. A system according to Claim 5, further comprising:
2 the substitution module adding a copy of the display region into the output
3 buffer when such display region was not previously substituted and substituting
4 the marker with dynamic content.

1 7. A system according to Claim 6, further comprising:
2 the substitution module adding a copy of the parent display region into the
3 output buffer when such display region comprises a break.

1 8. A system according to Claim 1, further comprising:
2 a database module retrieving data values from an associated database and
3 applying the retrieved data values as the dynamic content.

1 9. A system according to Claim 1, wherein the page description
2 language is at least one of HTML and XML.

1 10. A method for dynamically generating Web content using a parse
2 tree, comprising:
3 building a template describing a dynamically generated Web page, the
4 template comprising a script written in a tag-delimited page description language

5 and including one or more markers which each indicate a relative location within
6 the Web page for dynamic content insertion;

7 defining display regions via a parse tree, the parse tree comprising a
8 plurality of nodes structured into levels, each node corresponding to structural
9 tags specified within the script, each successive level representing a further
10 nesting of the structural tags within the script;

11 substituting each marker with dynamic content, comprising:

12 inserting the dynamic content into the display region for the
13 substituted marker; and

14 processing each node located in a level of the parse tree previous to
15 the node corresponding to the substituted marker; and

16 serving the Web page script into an output buffer with the dynamic
17 content included therein.

1 11. A method according to Claim 10, further comprising:

2 copying a display region into which dynamic content was previously
3 inserted into the output buffer.

1 12. A method according to Claim 10, further comprising:

2 deleting a display region into which dynamic content was not previously
3 inserted from the output buffer.

1 13. A method according to Claim 10, further comprising:

2 parsing the script for display regions, comprising:

3 identifying matched pairs of select tags within the statements in the
4 script; and

5 creating a new node within the parse tree for the markers located
6 between the matched select tag pairs.

1 14. A method according to Claim 10, further comprising:

2 adding a display region to the output buffer when such display region was
3 not previously inserted into the output buffer; and

4 iteratively adding a parent display region into the output buffer, each
5 parent display region corresponding to each such node located in a level of the
6 parse tree previous to the node corresponding to the added display region.

1 15. A method according to Claim 14, further comprising:
2 adding a copy of the display region into the output buffer when such
3 display region was not previously substituted; and
4 substituting the marker with dynamic content.

1 16. A method according to Claim 15, further comprising:
2 adding a copy of the parent display region into the output buffer when
3 such display region comprises a break.

1 17. A method according to Claim 10, further comprising:
2 retrieving data values from an associated database; and
3 applying the retrieved data values as the dynamic content.

1 18. A method according to Claim 10, wherein the page description
2 language is at least one of HTML and XML.

1 19. A computer-readable storage medium holding code for
2 dynamically generating Web content using a parse tree, comprising:
3 building a template describing a dynamically generated Web page, the
4 template comprising a script written in a tag-delimited page description language
5 and including one or more markers which each indicate a relative location within
6 the Web page for dynamic content insertion;
7 defining display regions via a parse tree, the parse tree comprising a
8 plurality of nodes structured into levels, each node corresponding to structural
9 tags specified within the script, each successive level representing a further
10 nesting of the structural tags within the script;
11 substituting each marker with dynamic content, comprising:

1 20. A storage medium according to Claim 19, further comprising:
2 copying a display region into which dynamic content was previously
3 inserted into the output buffer.

1 21. A storage medium according to Claim 19, further comprising:
2 deleting a display region into which dynamic content was not previously
3 inserted from the output buffer.

1 22. A storage medium according to Claim 19, further comprising:
2 parsing the script for display regions, comprising:
3 identifying matched pairs of select tags within the statements in the
4 script; and
5 creating a new node within the parse tree for the markers located
6 between the matched select tag pairs.

1 23. A storage medium according to Claim 19, further comprising:
2 adding a display region to the output buffer when such display region was
3 not previously inserted into the output buffer; and
4 iteratively adding a parent display region into the output buffer, each
5 parent display region corresponding to each such node located in a level of the
6 parse tree previous to the node corresponding to the added display region;
7 adding a copy of the display region into the output buffer when such
8 display region was not previously substituted; and
9 substituting the marker with dynamic content; and

10 adding a copy of the parent display region into the output buffer when
11 such display region comprises a break.

1 24. A storage medium according to Claim 19, further comprising:
2 retrieving data values from an associated database; and
3 applying the retrieved data values as the dynamic content.